20 Voting Equipment

This chapter provides an overview of voting equipment purchase and use in elections. Refer to Chapter 6, Article 3 of the Code of Virginia "Voting Equipment and Systems" for details.

The Help America Vote Act of 2002 (HAVA) provided funds for a number of election reform activities and initiatives, including the replacement of punch card and lever voting equipment. HAVA requires that the replacement of these machines occur before the first federal election of 2006.

HAVA also requires that voting equipment meet specific standards. While DRE voting equipment most readily meets the standards, optical scan equipment may also meet HAVA standards when accompanied by an Automark ballot marking device. In 2007, Virginia enacted legislation establishing a policy direction in favor of optical scan equipment and phasing out DRE equipment that may only be used for the remainder of its useful life. § 24.2-626. 2009 legislation provides limited relief from this ban allowing DRE equipment to be borrowed on a temporary basis to supplement a deficiency for a special election. Legislation going into effect 7/2010 allows localities to acquire direct recording electronic machines (DREs) for the purpose of providing one voting system at each polling place equipped for individuals with disabilities. (SB 593).

The procedures that localities need to follow to request HAVA funds are explained in detail in the "HAVA Expenditures Guidance Document." (Rev. June 2006).

20.1 Types of Voting Equipment

There are two general types of voting equipment used in Virginia.

20.1.1 Direct Recording Electronic (DRE)

On these computerized machines, the voter pushes a button or touches an area of a screen, and his choice(s) is recorded electronically. For most DRE machines, the results are recorded in two places: an on-board data storage device embedded in the machine and a removable data storage device. These systems are equipped with a printer feature for printing out the results.

The Code of Virginia and HAVA require at least one accessible piece of voting equipment be available and operational in each precinct for all elections. This includes all state, local, and town elections, as well as central absentee precincts (CAPs). An accessible piece of equipment is also required during in-person absentee voting. § 24.2-626.1 and EAC Advisory 2007-001.

Two types of DREs are used in Virginia:

20.1.1.1 Full-ballot screen

On these machines, a large paper ballot shows the voter the complete ballot. Touching the ballot near the preferred candidate's name activates a sensing device beneath the ballot face.

20.1.1.2 Small touch screen

These machines look like computer monitors. To make a choice, the voter touches the screen or buttons around its periphery. Depending on the number of offices and candidates, the voter may have to "scroll" through several screens in order to access the entire ballot. Some of these machines are designed to be activated with smart cards that allow multiple ballot styles to be accessed on the same machine.

20.1.2 Optical Scanning Equipment

On this type of equipment, electronic counters "read" marks made on card stock ballots by scanning them with light beams. The voter makes his choice(s) by shading the oval or connecting the arrow to the left of the candidate's name. The ballot is then fed into the counter. Generally, only one counter is needed for each polling place. This voting system alone does not satisfy HAVA accessibility requirements; a separate HAVA compliant ballot marking device must also be provided in order to provide access to persons with a disability.

20.2 Number of Voting Machines Required

All localities are required to use electronic voting or counting systems, of a kind approved by the State Board, at every precinct and for all elections held in the county, the city, or any part of the county or city. The number required is set in the Code. (§§ 24.2-626 and 24.2-627).

For November general elections, localities using DRE machines must have one machine in each precinct for every 750 active registered voters. This means that, if a precinct has 751 active registered voters, at least two machines are required; if a precinct has 1501 voters, at least three machines are required, and so on. (§24.2-627).

For November general elections, localities using optical scanning systems must have at least one counter for each precinct and one voting booth with a marking device for every 425 active registered voters. (§24.2-627).

For May general elections, special elections, and primaries, the local electoral board may use the number of machines and devices it deems appropriate for each precinct. (§24.2-627).

Towns had previously been allowed to use traditional paper ballots for town elections as long as each town precinct contained less than 500 active registered voters. This

equipment exemption for town elections was removed from the Code at the 2007 General Assembly Session, along with the exemption allowing counties under 7,000 in population, with precincts all under 1000 registered voters to continue using paper ballots countywide. Paper ballots may only be used for the following specific reasons cited in § 24.2-646.1:

1. The official paper ballot is the only ballot in use in the precinct.
2. The official paper ballot is used by voters voting outside the polling place pursuant to § 24.2-649.
3. The voter is casting a provisional ballot.
4. The voter is provided an official paper ballot or copy thereof pursuant to § 24.2-642 when voting equipment is inoperable or otherwise unavailable.
5. The official absentee paper ballot voted in accordance with (§ 24.2-700 et seq.).
6. The voter is provided an official paper ballot for a presidential election pursuant to § 24.2-402.

Each precinct must be equipped with at least one piece of voting equipment that will permit a voter with a disability to cast his vote privately and independently. This includes during in-person absentee voting.

20.3 Mixing and Experimenting with Systems

Localities may use different kinds of systems in different precincts – or even in the same precinct – but only with approval of the SBE. (§ 24.2-630.) Requests for such approval should be forwarded from the electoral board to the Secretary of the SBE.

Localities may also experiment with new voting systems in one or more precincts. A new system may be one that has already been certified for use by the SBE, or it may be one that is still in the testing stage. In either case, the electoral board must (1) gain approval from the SBE for such an experimental use, and (2) unless the locality has successfully completed the bailout process, apply for pre-clearance of the experimental usage with the U.S. Department of Justice. (§§ 24.2-631 and 24.2-632).

20.4 Purchasing New Machines

The Code permits localities to obtain machines by purchase, lease, lease purchase, or any other method deemed appropriate. (§ 24.2-626). All voting equipment lease or purchase contracts, whether for a new system or for additional units of an existing system, must be submitted to the SBE for review and approval prior to execution of the contract. The contract submitted must contain only the vendor's signature. It must not contain the signature of anyone from the purchasing locality.

This procedure ensures that only the certified version of any voting system is being purchased, that the number of units purchased is in compliance with the requirements of § 24.2-627, and that a warranty and specific delivery date are detailed by the vendor.

When a locality purchases a voting system that is new to that locality, such a purchase constitutes a voting change that must be submitted to, and approved by, the U.S. Department of Justice as required by the Federal Voting Rights Act. All localities except those which have completed the bailout process must request pre-clearance prior to implementing a new voting system. This requirement also applies to the purchase of a new system to be used in a central absentee voter precinct (CAP). If a locality adopts, for locality-wide polling place use, a system previously used only in a CAP, such adoption must likewise be pre-cleared prior to implementation.

20.5 Custodians

For the purpose of programming and preparing voting and counting equipment, including the programming of any electronic activation devices or data storage media used to program or operate the equipment, and maintaining, testing, calibrating, and delivering it, the electoral board must employ one or more custodians. In many cases, the custodians may be provided by the authorized sales and service representative of the equipment in use. It is highly recommended, however, that board members become thoroughly familiar with the system requirements and train the individual(s) who will serve in this capacity. In fact, several localities may share a custodian, greatly reducing their dependence on vendor support and, in some cases, reducing their cost. Custodians must be sworn to perform their duties honestly and faithfully. (§ 24.2-632).

The final testing of equipment prior to each election shall be done in the presence of an electoral board member or a representative of the board. Such representative shall in no case be the custodian or a vendor or contractor technician who was responsible for programming the ballot software, electronic activation devises, or electronic storage media. (§24.2-632).

The electoral board may assign a board member or registrar to serve without pay as a custodian. Whenever the presence of an electoral board member and custodian is required by the provisions of this title, the same person shall not serve in both capacities. (§ 24.2-632).

20.6 Preparing and Testing the Equipment

Before the final testing of voting or counting equipment for any election, the electoral board must notify the local political party chairs of the time and place the equipment will be prepared. Each party is allowed to have one representative witness the preparation of the equipment. If the election is a primary election, then only the party chairman holding the primary needs to be notified. If it is a city or town election with no political party nominees, then the candidates must be notified. (§ 24.2-633).

Logic and accuracy testing is an integral part of preparing for an election. Every machine that will be used in an election must be tested prior to that election to ensure it is functioning properly. The machine custodian typically manages this process. Each machine should be tested with enough sample ballots/votes to substantiate that each machine recorded the correct number of votes for each candidate. An electoral board

member, or a designated representative, must be present during this process and must certify the results from each machine. A representative should be used only if it is impossible for a board member to be present. (§ 24.2-632).

The EAC has developed a quick start guide that is available by clicking here EAC [1]

After the equipment is prepared and tested, each machine must be sealed with a numbered seal or locked with a key. All the keys and any electronic activation devices must then be delivered to the electoral board who shall keep them until they are delivered to the officers of election. (§ 24.2-634).

20.7 Voting Equipment Security

With the pervasive use of electronic voting systems across the Commonwealth, the State Board of Elections recognizes these systems are computer-based and, as such, are subject to the same security concerns and necessary safeguards as other Information Technology systems. Consequently, in accordance with COV ITRM Policy SEC500-02, *Information Technology Security Policy*, the State Board of Elections published a *Voting Systems Security Policy* that defines a formal Voting Systems Security Program.

It is the policy of the State Board of Elections that each electoral board is responsible for the security of ALL voting systems, including electronic pollbooks, under their control and that they shall take appropriate steps to provide for the security of these systems through the implementation of a local Voting Systems Security Program (VSSP). The State program requires each locality to develop a written security plan and update it annually; this requirement was codified by the General Assembly in 2007 (§24.2-625.1*(D)*). All plans should be submitted to SBE. SBE will review each one and officially endorse it if it meets all the requirements set forth in the *Voting Systems Security Standards* (COV VSM Standard SEC2005-01.1, dated January 17, 2005).

SBE will direct all voting equipment vendors to submit updated best practices concerning the security of voting equipment and will make these best practices available to electoral boards. The EAC has developed some general best practices and they are available here.[2]

To achieve the objectives of the Voting Systems Security Program, SBE adopted voting systems security *policies*, *standards*, and *guidelines* (PSGs) which constitute recommended minimum considerations for a comprehensive program. This four part document articulates policy, standards, and extensive reference and self-assessment guidance:

1. The **Policy** document emphasizes that each electoral board is responsible for the security of all voting systems under their control and directs the local boards to

[1] Updated 07/2007
[2] Updated 07/2007

develop and implement a Voting Systems Security Program. The local program must be documented in a security plan that must be submitted to SBE for review.

2. The **Standards** document defines the recommended minimum requirements of a comprehensive Voting Systems Security Program. Local plans must address ALL requirements of these standards to be endorsed by SBE.

3. The **Guidelines** document is designed to complement the Voting Systems Security Standards document. It provides additional information, examples, and recommendations to further strengthen local programs.

4. The **Self-Assessment** document consists of a series of questions that, when answered, will indicate the extent of compliance with the standards.

SBE also developed tools designed to aid localities in developing their plans and to formalize SBE's review process.

1. The *Précis* is an abridged version of the Voting System Security Standards and Guidelines. It summarizes all the specific requirements that must be addressed in a security plan to receive SBE's endorsement (consolidates the thirty-five pages of Standards and Guidelines content into five pages).

2. The *Review Checklist* itemizes the requirements summarized in the *Précis*. It is the baseline SBE uses to review security plans submitted by localities (4 pages of content). Localities may find the Checklist useful as an outline or a quick reference guide in developing their plans.

3. The *On-site Assessment Checklist* itemizes the requirements summarized in the *Précis*, similar to the *Review Checklist*, but with emphasis on documentation. It is the baseline SBE will use during site visits to review locality security programs. Localities may use this Checklist in lieu of the Self-Assessment Questionnaire (which accompanies the PSGs) to facilitate their annual program reviews.

For reference, please be aware that § 24.2-625.1 provides that, "Records of the SBE or of a local electoral board, to the extent such records describe protocols for maintaining the security of ballots or voting and counting equipment, or reveal the results of risk assessments of specific local electoral procedures, the release of which would compromise the security of any election, shall be confidential and excluded from inspection and copying under the Virginia Freedom of Information Act (FOIA)." Electoral boards or the SBE may hold a closed meeting pursuant to the provisions of FOIA to discuss security protocols under circumstances outlined in the code section. The Code does not authorize the use of a closed meeting to discuss a breach of security. This section also provides that two members of a local electoral board may conduct site visits for the sole purpose for investigating compliance with security policies and procedures. (§ 24.2-625.1(C)).

20.7.1 Configuration Management Database

The Security Procedures also require that each local board establish a "Configuration Management Database." This very complicated sounding term simply means a list of all voting system hardware, software, and firmware, complete with version numbers and serial numbers where appropriate. Any time any person, for any reason, has access to any item or component, the time, date, the person, a reason for access, and activity must be noted in the database. This will ensure that no changes are made to any component firmware or software without the knowledge and consent of the responsible person in the locality.

ⓘ According to the State Certification of Voting Systems, Requirements and Procedures, (item 1.3. Applicability); any changes to firmware or software could invalidate the certification of the equipment.

Date /Time	Machine Make /Model	Machine Serial Number	Person Allowed Access	Reason for access/Action taken	Responsible Party
3/3/2003 10:00 am	AVS Winvote	123-45-678	Mr. Jones and Mr. Smith, Vendor	New machine delivered. Contains WINmanager 1.0.3, WINprep 1.0.3, WINresults 1.0.3, WINvote 1.5.0, and WINware 1.0.3.	Jane Doe (Electoral Board)
4/4/2004 1:30 pm	Diebold Accuvote	234-56-789	Mr. Smith and Ms Green, Vendor	Upgraded GEMS 1.18.18 to 1.18.24	John Jones (GR)
5/5/2007 9:00 am	Hart eSlate	345-67-890	Mr. Jones, Vendor	Programmed machine with ballot for March election.	John Doe (County X Custodian)
6/6/2008 11:00 am	ES&S Automark	456-78-901	GR staff and EB members	L&A testing	John Doe (County X Custodian)

20.7.2 Wireless Prohibition

Wireless communications to or from any piece of voting equipment is prohibited while the polls are open on Election Day. Wireless features may still be used to set up, program, open, close, and get vote totals from the voting equipment before the polls open and after the polls have closed. ***This wireless prohibition does not apply to voting machines purchased by any locality before July 1, 2007. In addition, this prohibition does not prohibit the use of electronic poll books on Election Day. (§ 24.2-625.2).

20.8 Virginia Freedom of Information Act (VFOIA) Considerations

Section 24.2-625.1 provides limited exemptions from VFOIA public meeting and records disclosure requirements for voting equipment security issues. An electoral board may close a meeting to discuss security protocols and conduct security compliance site visits preceded and followed by open meetings about the visits. Records describing security protocols or specific risk assessments that could compromise election security if released

are exempt from disclosure. This exemption does not extend to records concerning voting equipment security breaches.

Section 24.2-107 provides a further exemption from public meeting requirements for certain election related matters:

- Preparation for specific elections without discussion or deliberation requiring a public meeting:
  - Preparation of ballots, election materials or voting equipment,
  - Inspection of polling places
  - Training of officers of election
- Election Day discussion of matter requiring immediate resolution following effort to notify all board members

The exemption for election preparations recognizes that electoral boards have functions that do not necessarily take place in (or require) a meeting, and are not necessarily open to the public. This exemption is similar to the "social exemption" in VFOIA § 2.2-3707(G) in that it does not apply to discussion or deliberation of what would otherwise require a public meeting, for example, adoption of a new policy regarding assistance at polling places. See Chapter 26 for more details.

20.9 Voting Equipment Certification Procedures

Under the Code of Virginia, the SBE must approve any mechanical or electronic voting system or equipment before it can be purchased or used by any locality. (§ 24.-626). This includes any upgrades or modifications to hardware, firmware and software. The State Certification of Voting Systems, Requirements and Procedures, state that any modification to existing software, which has been previously certified will, in general, invalidate the results of the prior certification unless and until it can be determined by the SBE that the change does not affect the overall flow of program control or the manner in which ballots are interpreted and the vote data are processed. This means that **no** change of any kind can be made to any voting system software or firmware unless the SBE has been informed of the proposed change and determined whether or not it will require re-certification of the system.

ⓘ These procedures are strict in order to protect the locality. Failure to follow these requirements may result in decertification of voting equipment and provide candidates a reason to contest an election.

As set forth in the State Certification of Voting Systems, Requirements and Procedures (Revised March 3, 2010), the voting system or equipment must:

- Have completed federal certification as prescribed by the applicable version of the Voluntary Voting Systems Guidelines, published by the U.S. Election Assistance Commission (Federal certification should substantiate compliance with §301(a) of the Help America Vote Act of 2002).

- Comply with the applicable provisions of the Code of Virginia relating to voting equipment (Article 3, Chapter 6 of Title 24.2) and the policies of the State Board of Elections.
- Accommodate interactive visual and non-visual presentation of information to voters and alternative languages when required.

Each system must successfully complete three distinct levels of testing:

1. Qualification testing: The purpose of qualification testing is to show that the voting system complies with the requirements of its own design specification and with the requirements of the SBE. The testing of hardware and software may be conducted by an Independent Testing Authority.
2. Certification testing: The purpose of certification testing is to ensure it meets all applicable requirements of the Code of Virginia. It is not intended to result in exhaustive tests of system hardware and software attributes; these are evaluated during qualification testing. However, all system functions, which are essential to the conduct of an election, will be evaluated.
3. Acceptance testing: This test is conducted by the locality to assure it meets their needs and is identical to the certified system. Acceptance tests will be conducted by the local jurisdiction with the assistance of state officials or consultants. The tests will be performed as part of the procurement process for the voting system.

Summary of the Certification Process:

- Letter of Request for Certification and Certification Fee
- Vendor submission of technical Data Package and Corporate Information
- Preliminary review by evaluation agent
- Vendor authorization to Proceed
- Evaluation by evaluation agent
- Board review of evaluation
- Test election
- Board certification and notification

20.9.1 Voting Equipment Certified for Use in Virginia

The voting systems listed below have been certified for use in Virginia elections. Please contact SBE for system version, vendor contact, or any other additional information.

Model	Vendor	Equipment Type
Accu-Vote	Premier Election Solutions	Optical Scan
Accu-Vote TSR6	Premier Election Solutions	DRE
Accu-Vote TSX	Premier Election Solutions	DRE
Automark	Election Systems and Software	Marksense Voter Assist Terminal
AVC	Sequoia Voting Systems	DRE

Ballot Now	Hart Intercivic	Optical Scan
Edge	Sequoia Voting Systems	DRE
eScan	Hart Intercivic	Optical Scan
eSlate	Hart Intercivic	DRE
Insight	Sequoia Voting Systems	Optical Scan
iVotronic	Election Systems and Software	DRE
M100	Election Systems and Software	Optical Scan
M650	Election Systems and Software	Optical Scan
Optech IIIPE	Sequoia Voting Systems	Optical Scan
Patriot	Unilect Corporation	DRE
Patriot MS	Unilect Corporation	Optical Scan
Winvote	Advanced Voting Solutions	DRE
Winscan	Advanced Voting Solutions	Optical Scan

Notes:
1. Premier Election Solutions was acquired by Elections Systems and Software (ES&S) in September, 2009. ES&S now owns and support Premier equipment.
2. Advanced Voting Solutions no longer supports voting equipment. Election Services Online is providing support for their systems.